Claims

1. A high-pressure pump, in particular for a fuel injection system of an internal combustion engine, having at least one pump element (18), which has a pump piston (20) which is guided displaceably in a cylinder bore (28) of a housing part (22) of the high-pressure pump and is driven in a reciprocating motion and which, in the cylinder bore (28), defines a pump work chamber (30), into which fuel is aspirated via an inlet valve (34) upon the intake stroke of the pump piston (20) and from which fuel is positively displaced upon the pumping stroke of the pump piston (30), and the inlet valve (34) has a pistonlike valve member (56), which with a sealing face (60) cooperates with a valve seat (52) for controlling the communication of the pump work chamber (30) with the fuel inlet (32), and the valve member (56) is urged in the closing direction by a closing spring (64) and by the pressure prevailing in the pump work chamber (30) and in the opening direction by the pressure prevailing in the fuel inlet (32), and the valve member (56), with a head (58) on which the sealing face (60) is embodied, is disposed in the pump work chamber (30) and protrudes from the pump work chamber (30) with a shaft (62) adjoining the head (58), and the closing spring (64) is disposed outside the pump work chamber (30) and engages the shaft (62), characterized in that the valve seat (52) is formed on the housing part (22) at a transition from the cylinder bore (28) to an adjoining, smaller-diameter bore (50; 150); that the valve member (56), with its shaft (62), protrudes through the bore (50) into a region (72) of the housing part (22) that is remote from the pump work chamber (30); and that the closing spring (64) is disposed in this region (72) of the housing part (22).

2. The high-pressure pump as defined by claim 1, characterized in that the region (72) of the housing part (22) in which the closing spring (64) is disposed is tightly closed off from the outside of the housing part (22) by means of a closure element (68); and that the fuel inlet (32) discharges into this region (72).

3. The high-pressure pump as defined by claim 2, characterized in that between the shaft (62) of the valve member (56) and the bore (50), there is a free flow cross section (63), through which, in the open state of the valve member (56), fuel flows out of the region (72) into the pump work chamber (30).

4. The high-pressure pump as defined by claim 2, characterized in that the bore (50) has a portion (150), discharging into the pump work chamber (30), between which portion and the shaft (62) of the valve member (56) a flow cross section (63) is uncovered; that the bore (50) has a second portion (250), discharging into the region (72), in which portion the shaft (62) of the valve member (56) is guided displaceably; and that the first portion (150) of the bore (50) communicates with the region (72).

5. The high-pressure pump as defined by one of the foregoing claims, characterized in that the sealing face (60) of the valve member (56) is embodied as convex toward the valve seat (52), and in particular is embodied as at least approximately in the form of a portion of a sphere.